Medication Adherence in Chronic Cardiovascular Disease

[Residency educators may adapt and use the following slides for their own teaching purposes.]

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Case Study

- Ms. KB is a 66-year-old female with diabetes, hypertension, obesity, and hyperlipidemia who presents for a follow-up visit.
- She complains today of arthritis pain in her knee and a stye in her eyelid. She asks about a new herbal preparation for lowering sugar.
- Despite your advice, her weight is unchanged, her HbA1c & LDL remain elevated, and her BP today is 146/83 mmHg on lisinopril and HCTZ.
- Careful questioning reveals that **she sometimes forgets her medications.**

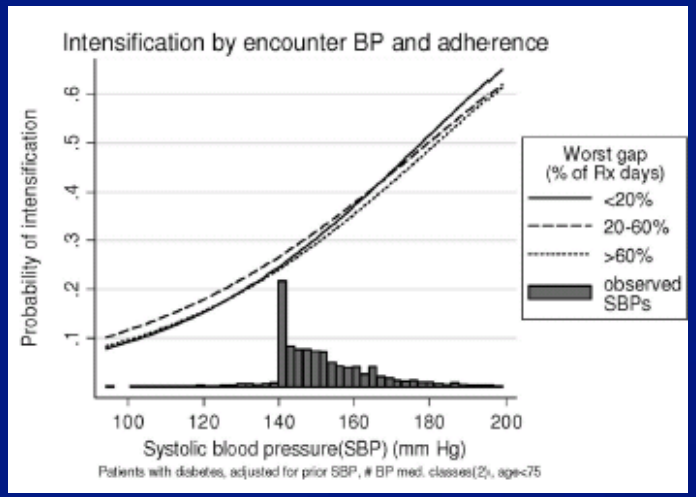
Primary Care Dilemma: Inadequate Adherence and High BP: Do I counsel or do I intensify meds, or both?

Key points in our understanding

- **Intensification occurs only 20–30% of the time**
- **Decision often based on BP or BP pattern**
- **Adherence usually not all or none**

•Heisler et al.: Patients' adherence had little impact on decisions about intensifying medications, even at very high levels of poor adherence.

•Rose et al.: In this observational study (n=819), treatment intensification was associated with similar BP improvement regardless of the patient's level of adherence.



What Is Adherence?

- **Compliance:** "The extent to which a person's behavior coincides with medical or health advice." **Haynes, 1979**
- **Adherence**: "The extent to which the patient continues an agreed-upon mode of treatment (under limited supervision) when faced with conflicting demands."

American Heritage Medical Dictionary, 2007

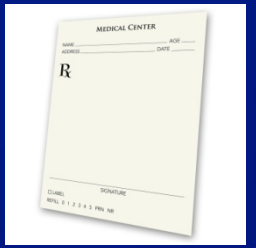
Primary vs. Secondary Non-Adherence

PRIMARY

- New Rx for new med– statin as example*
- Approximately 1/5 of patients did not fill the initial Rx despite having Rx insurance
- Fear of side effects, etc., may be a more prominent reason in this setting

SECONDARY

- Initial Rx filled
- Not refilled
- Not taken correctly
  - Take, stop, take, stop
  - Every other day
  - Take when “symptoms”
  - Take 1/3 prescribed/day



*Derose SF, Green K, Marrett E. Automated outreach to increase primary adherence to cholesterol-lowering medications [published online November 26, 2012]. Arch Intern Med. 2013.

Long-Term or Secondary Medication Non-Adherence

Greater prescribing/filling complexity was associated with lower levels of adherence.

Racial Differences in Beliefs About Medications (n=806)

Belief statements –% agree with statement	African-American	White
Prescription medications do more harm than good	25%	16%
People should stop prescription medications every now and again	20%	10%
Most medications are addictive	40%	27%
Doctors trust prescription medications too much	46%	41%
Generics are not as good as brand-name medications	39%	19%
I am more likely to skip the dose of a generic medication	24%	10%
Insurance companies push generics to save money at the expense of my health	71%	56%

Piette JD, et al. Beliefs about prescription medications among patients with diabetes: variation across racial groups and influences on cost-related medication underuse. Journal of Health Care for the Poor and Underserved. 2010; 21.1: 349–361.

Consequences of Non-Adherence in High-Risk Patients

- 1,015 patients with history of stable coronary artery disease
- Single question about adherence
- Followed for 4 years
- **4.4x risk of stroke, 3.8x risk of death**

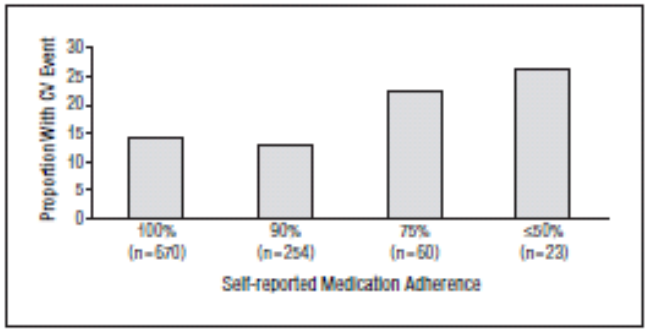


Figure 1. Proportion with subsequent cardiovascular (CV) event (myocardial infarction, stroke, or coronary heart disease death) by the percentage of time in the past month when participants reported taking medications as prescribed ($P = .20$ for proportion with events across all 4 adherence categories; $P = .03$ for proportion with events in patients with adherence ≤75% vs >75% of the time).

Table 2. Association of Medication Nonadherence With CHD Death, Myocardial Infarction, and Stroke in 1007 Participants With Stable CHD

Variable	Unadjusted HR (95% Confidence Interval)	*P* Value	Adjusted HR[a] (95% Confidence Interval)	*P* Value
CHD death	2.0 (0.8-4.8)	.12	3.8 (1.3-10.7)	.01
Myocardial infarction	1.4 (0.7-2.6)	.34	1.5 (0.7-3.6)	.33
Stroke	2.8 (1.2-6.9)	.02	4.4 (1.4-13.9)	.01
Any of the above	1.8 (1.1-3.0)	.03	2.3 (1.3-4.3)	.006

Abbreviations: CHD, coronary heart disease; HR, hazards ratio.
[a]Adjusted for age, sex, race, educational level, smoking, depressive symptoms, diabetes mellitus, hypertension, number of cardiovascular medications, use of β-blocker, use of statin, left ventricular ejection fraction, weekly angina, high-density lipoprotein cholesterol level, low-density lipoprotein cholesterol level.

Gehi AK, Ali S, Na B, Whooley MA. Self-reported medication adherence and cardiovascular events in patients with stable coronary heart disease: the heart and soul study. Arch Intern Med. 2007;167(16):1798–1803.

The Cost of Non-Adherence

Patients who were the MOST adherent had total costs ***47%*** *LOWER than patients who were the LEAST adherent.*

Sokol MC. et al. Impact of medication adherence on hospitalization risk and healthcare cost. Medical Care. 2005;43.6:521–530.

Poor medication adherence estimated to cost the US ***$105.8 billion****, or an average of* ***$453 per adult****, in 2010.*

Nasseh K, et al. Cost of medication nonadherence associated with diabetes, hypertension, and dyslipidemia. Am J Pharm. 2012;4.2:e41–e47.

Implications: We Need to Address Medication Adherence in Primary Care

4 top reasons for non-adherence

- **Cost of medications**
- **Side effects/fear of side effects**
- **Forget/can't keep track of medications/complexity**
- **Don't think it works/don't need it**

Key Point: It's **not just about cost**. It's a complex health behavior that is influenced by:

- Socioeconomic factors (age, race, gender, socioecomonic status)
- Patient-related factors (knowledge, attitudes, beliefs, and skills)
- Condition/treatment related factors (disease severity, co-morbidity, regimen complexity, side effects)
- Provider factors (skill, training, resources)
- Setting/policies (access to care, Rx coverage)

What Is Effective in Helping Chronic Non-Adherence: Sobering Findings

Annals of Internal Medicine Systematic Review 2012 and the Cochrane Review:

- 36 of 83 interventions in 70 RCTs improved adherence, but only 25 led to clinical improvement
- Almost all were complex interventions but led to only modest improvements—case management and patient education with behavioral support
- Cost effectiveness needs to be studied
- Policy interventions aimed at co-payment costs or drug coverage were also effective

Changing Policies in My State/Region to Facilitate Improved Adherence/Outcomes

- Both an RCT and large observational studies in cardiovascular patients demonstrate that reducing out-of-pocket costs/improving drug coverage for cardiovascular meds leads to improved adherence and outcomes
  - Modest improvement in adherence (5–10%)
  - Improved time/occurrence of first major vascular event
  - Reduced total major vascular events
  - Decreased out-of-pocket spending for patients
  - Did not increase total costs/spending by insurers

Desai NR, Choudhry NK. Impediments to adherence to post myocardial infarction medications. Current Cardiology Reports. 2013;15.1:1–8.

Changing Policy to Leverage Technology: Automated Calls in Primary Non-Adherence

RCT of an automated call system in patients with primary non-adherence to statin medication

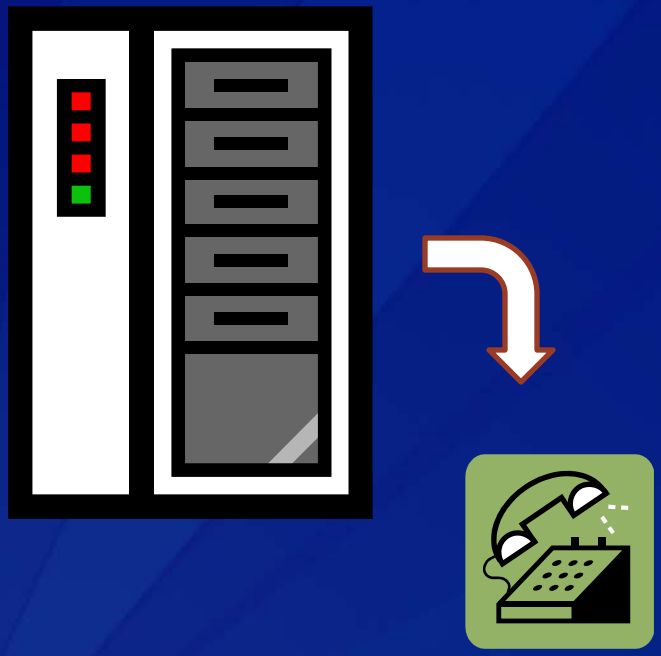


Table 2. Intervention vs Control Group Medication Adherence in Those Who Had Not Filled Their Prescription After 1 to 2 Weeks[a]

	No. (%) of Patients	
Group	Medication Dispensed	Mediation Not Dispensed
Intervention (n = 2606)	1102 (42.3)	1504 (57.7)
Control (n = 2610)	679 (26.0)	1931 (74.0)
Total (N = 5216)	**1781** (34.1)	**3435** (65.9)

[a]The outcome was a dispensed prescription for a statin or a statin containing a combination drug between 32 and 39 days after the prescription date, which was 2 weeks after the anticipated delivery date of the outreach letter in the intervention arm. The relative risk for a dispensed medication in the intervention vs control group was 1.63 (95% CI, 1.50-1.76; $P < .001$); alternatively stated, the relative risk for nonadherence (no dispensed medication) in the intervention vs control group was 0.78 (95% CI, 0.75-0.81).

Derose SF, Green K, Marrett E. Automated outreach to increase primary adherence to cholesterol-lowering medications [published online November 26, 2012]. Arch Intern Med. 2013.

Changing My Practice to Collect and Value Adherence Info

Info from front desk, patient, and chart

- No show—reschedule/check need for medications
- Ask about medication adherence or use visual analog scale at intake
- Check chart for refills authorized
- Always follow-up with new prescriptions in high-risk patients

Info from pharmacy or insurance carrier

- Filled new Rx?
- Percent days covered or medication possession ratio
- Out-of-pocket co-pay info for meds ⇨ my prescribing

Changing My Practice to Intervene in Non-Adherent Patients: A Team Sport

- Redesign roles/workflow to facilitate more provider and staff time (face to face, phone, email, text) with these high-risk patients; train staff in communication
- Evidence-based strategies:
  - Patient education with behavioral support—regular contact over weeks to months by staff or coach; self-monitoring BP facilitates adherence/control
  - Pharmacist-led, multi-component interventions/case management

Changing My Practice to Intervene in Non-Adherent Patients: Use of Electronic Health Records (EHR)

Fully leverage use of your EHR:

1. Adherence assessment strategy embedded in rooming the patient
2. Print medication list ahead: Have patient do medication reconciliation and problem identification at the time of the visit
3. Embed formularies and e-prescribe 90-day supply of affordable generic meds
4. Embed standard prescription for home BP monitor
5. Use fill review/percent days covered info if available from pharmacy claims
6. Use visit summaries at end of visit to cue patients to self-monitoring and adherence behaviors
7. Use patient portal to give patient feedback/support

Role of Motivational Interviewing to Improve Self-Efficacy

- RCT of practice-based motivational interviewing in hypertensive African Americans—4 intensive sessions over 1 year
- Adherence (measured by medication event monitoring systems) improved by 14% in intervention group with modest improvement in systolic BP
- Improved adherence appeared to be sustained

Era of the Patient-Centered Medical Home

Patient-Determined Goals and Action Steps

- Goal is to help patients generate ideas (self-determined goals) to help with medication adherence challenges
- Use “probes” to get at deeper issues
  - Tell me more about the trouble you are having.
  - What has helped in the past?
- Work with patients to create realistic and actionable steps
  - What do you want to do to address this problem?
  - When will you fill/begin *(the action)?*
  - May I call you next week to see how this is going?

Summary

- Medication non-adherence in cardiovascular diseases/risk factors is a common problem with multi-faceted reasons for its occurrence
- Medication non-adherence is associated with worse outcomes and higher health system costs
- Primary care providers can improve outcomes by focusing on public policy, outpatient practice redesign that optimally leverages EHR capability, and patient-specific intervention strategies